

APPENDIX X-A

U.S. NAVY-NOAA JOINT ICE CENTER SEASONAL OUTLOOK EASTERN ARCTIC ICE 1983

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OUTLOOK - SUMMER 1983

SEA ICE CONDITIONS FOR THE GREENLAND COAST

The eastern Arctic long range outlook is based upon an analogue technique which compares late April ice conditions and freezing day accumulations with those of past seasons.

In figure 1 the ice conditions for April 26, 1983 are analyzed from a synthesis of satellite and conventional data. Satellite data were obtained from NOAA-7 visible and infrared sensors and the NIMBUS-7 scanning multifrequency microwave radiometer. Canadian and Danish ship, shore, and aerial ice reconnaissance reports from the North Atlantic, Labrador Sea, and Baffin Bay were also utilized. Figure 2 depicts the April 26 ice edge relative to the historical April maximum and minimum extremes in both the Labrador Sea and North Atlantic Ocean. The April 26 ice edge position generally exceeds or approximates the historical extremes in both the Labrador Sea and the North Atlantic Ocean. Seasonal frost degree day accumulations for coastal stations bordering the Labrador Sea and Baffin Bay are presented in figures 3 through 7. Each of the stations have observed new or near record maximum theoretical ice thicknesses for 1983. In East Greenland figure 8 shows that the frost degree day accumulation for Angmagssalik is near normal.

Figures 9 through 12 contain ice limit forecasts from May through August. It is predicted that the pack ice conditions in the Labrador Sea and Baffin Bay will be the most severe observed within the last 20 years. Near the East Greenland coast a near normal ice limit is predicted despite the near maximum ice limit currently observed south of 66°N. It is believed that the ice severity in south eastern Greenland in mid-summer is partially dependent upon the amount of ice available for southerly drift by the East Greenland current. The ice source region lies north of 66°N and currently has a near normal ice extent. Opening dates for Thule, Sondrestrom, and Angmagssalik are contained in Table 1.

TABLE 1 PORT OPENING DATES, FORECAST TRENDS

* Escorted

Port Normal Opening Date	Thule 12 July	Sondrestrom 30 May	Angmagssalik 14 July
Predicted Trend	Later 8-10 Days	Later 4-6 Days	Normal

** Unescorted

Port Normal Opening Date	Thule 25 July	Sondrestrom 08 June	Angmagssalik 18 August
Predicted	Later 8-10 Days	Later 4-6 Days	Normal

* Concentrations in approaches 7/10 or less and any fast ice will be weakened

** Concentration in approaches and port 1/10 or less.

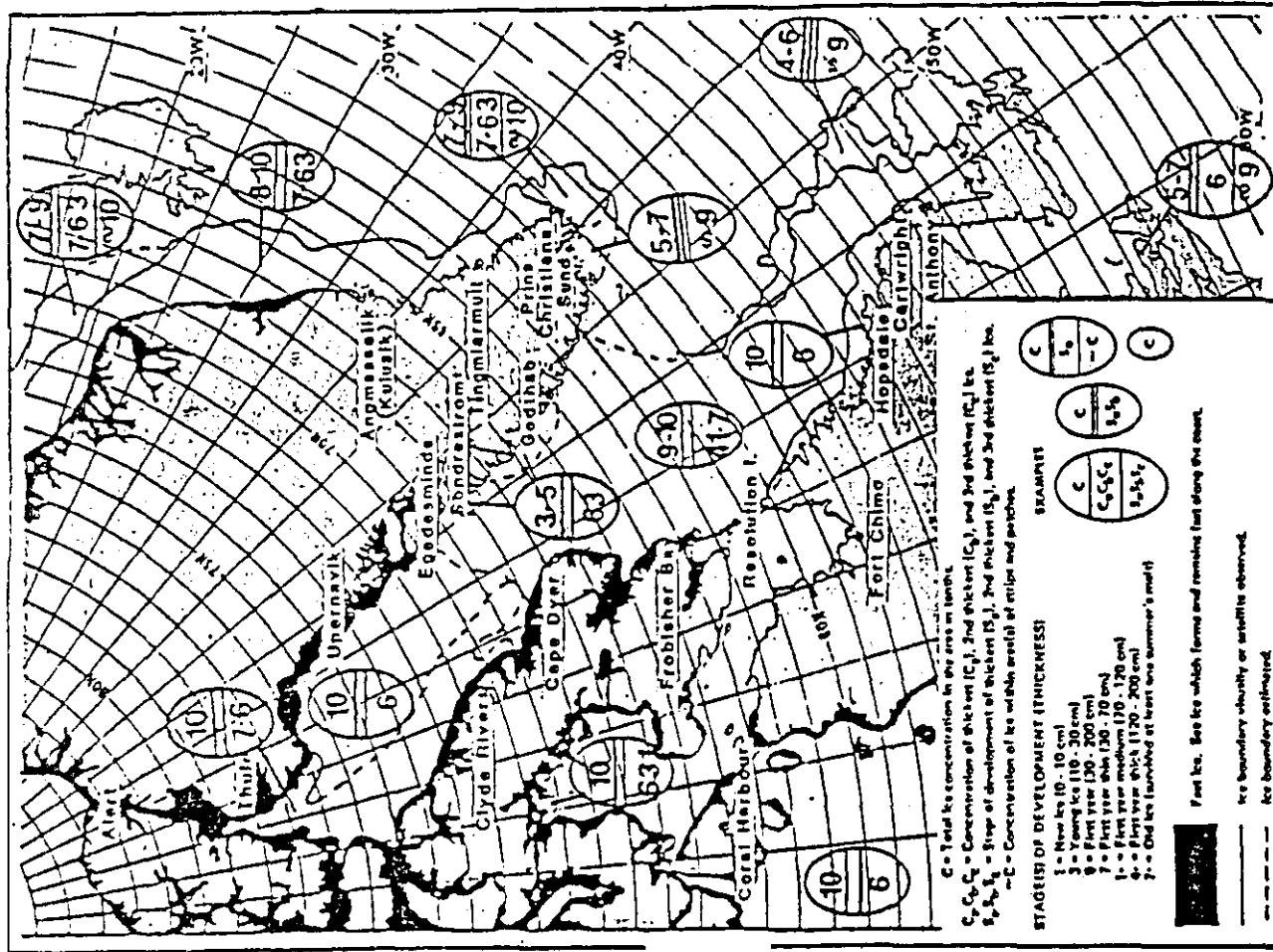
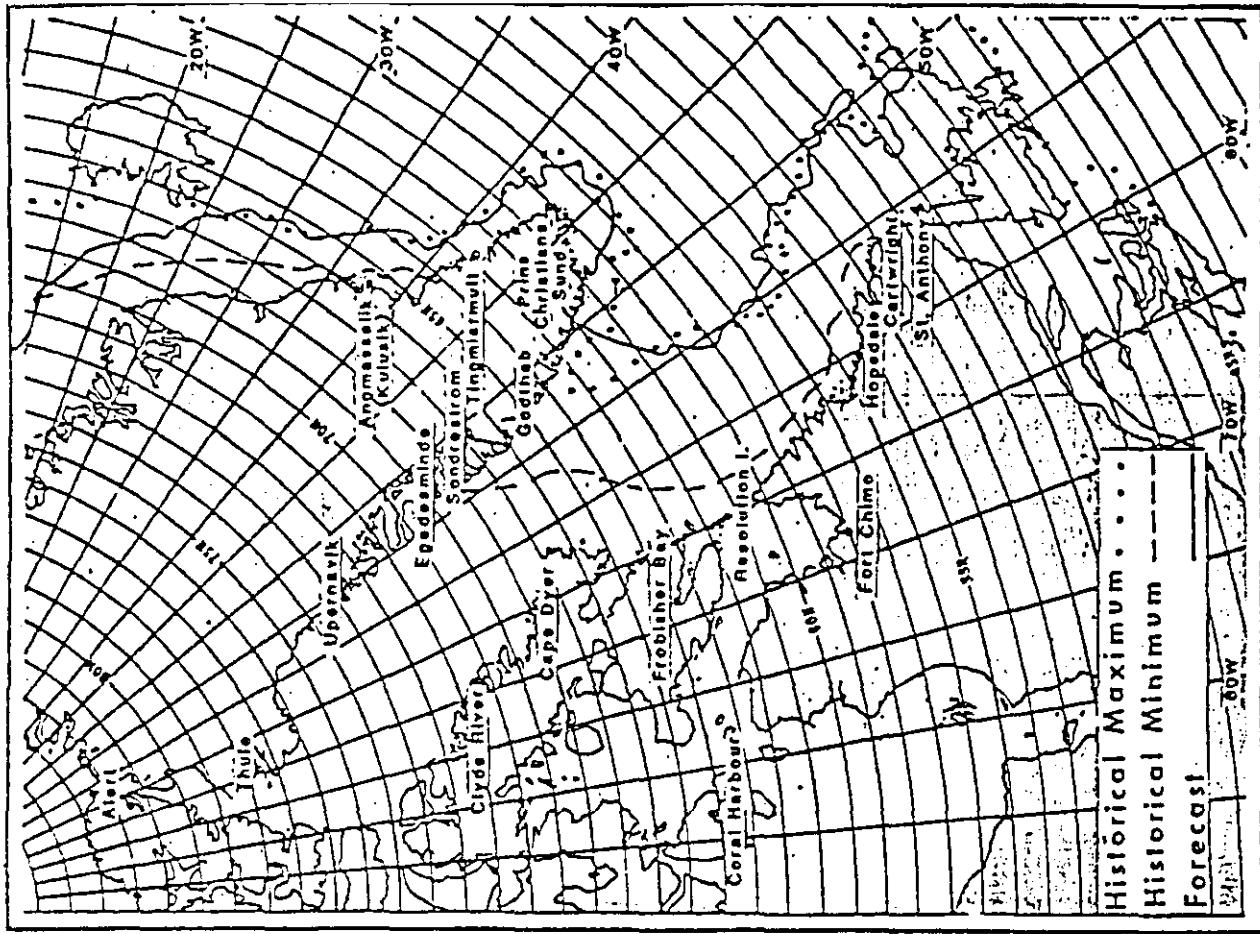


Figure 1 Initial sea ice conditions
April 26, 1983

Figure 2 April historical maximum, minimum and observed April 26, 1983
ice edge limit

THULE FROST-DEGREE-DAY CURVES

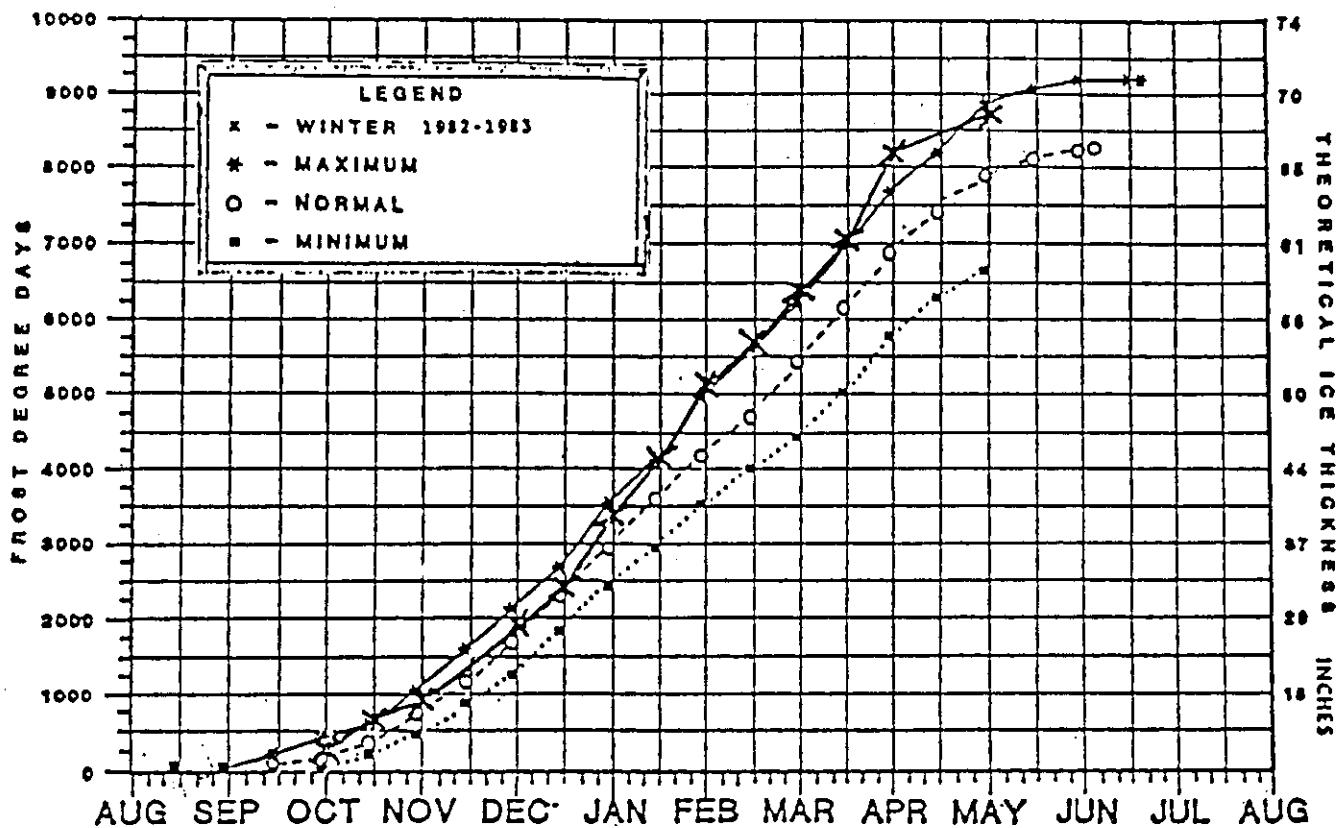


Figure 3. Frost degree day accumulations for Thule, Greenland

UPERNAVIK FROST-DEGREE-DAY CURVES

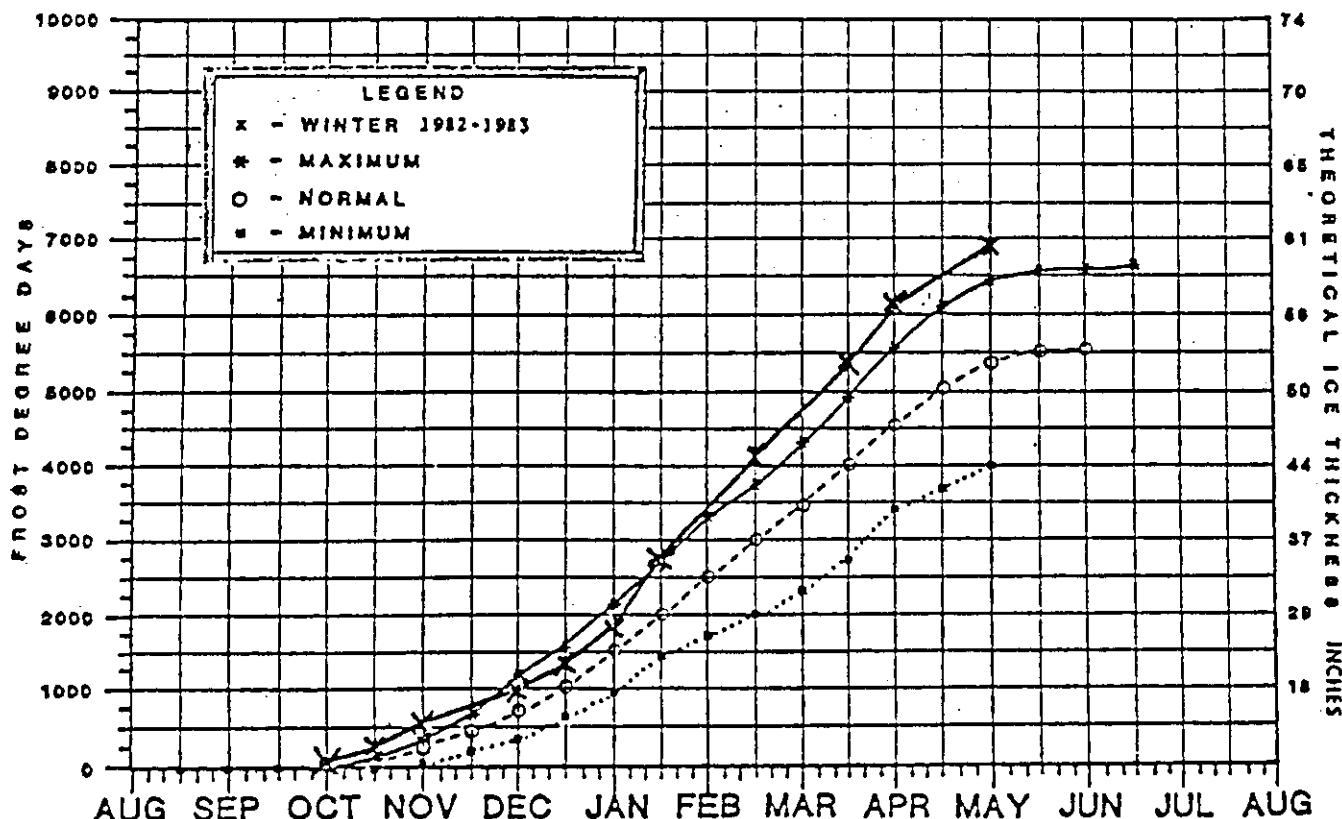


Figure 4. Frost degree day accumulations for Upernivik, Greenland

SONDRESTROM FROST-DEGREE-DAY CURVES

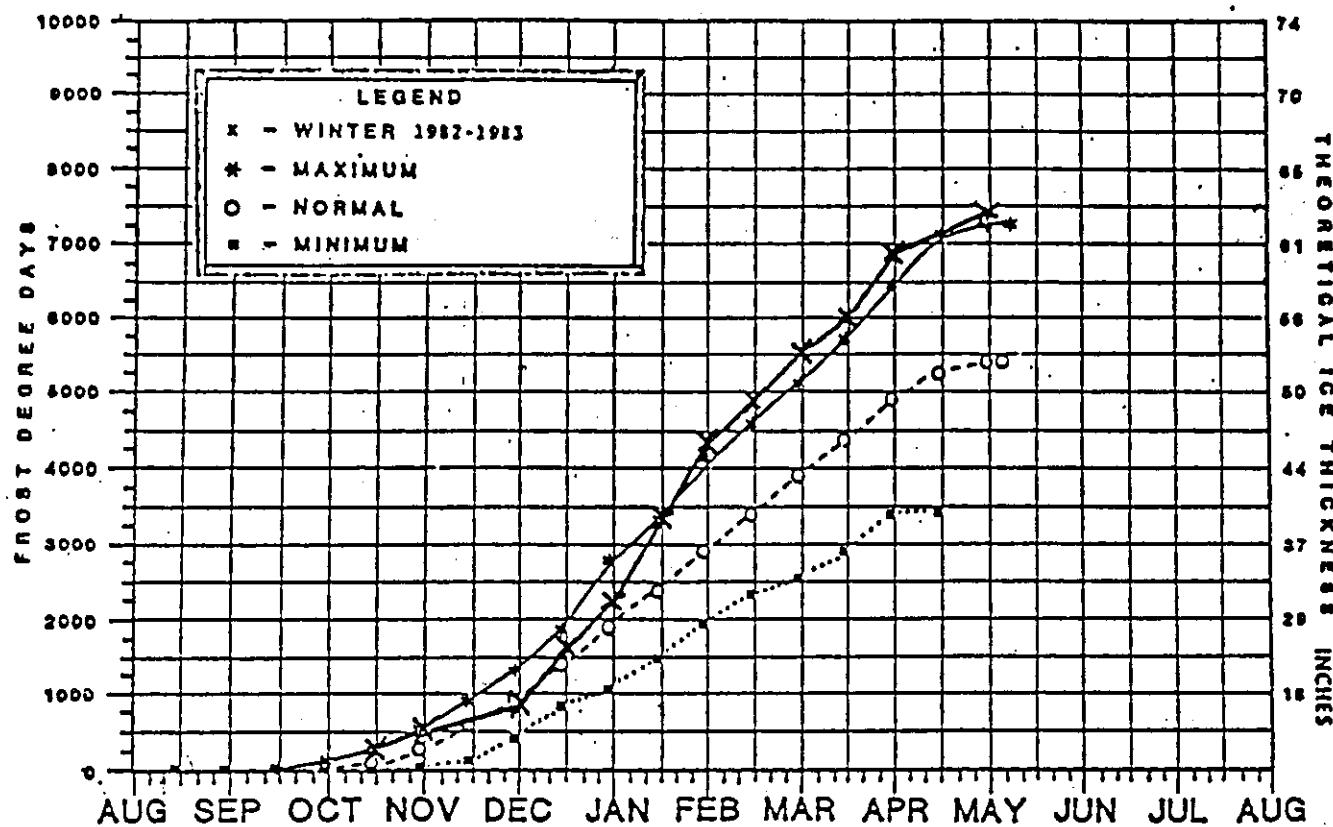


Figure 5. Frost degree day accumulations for Sondrestrom, Greenland

CAPE DYER FROST-DEGREE-DAY CURVES

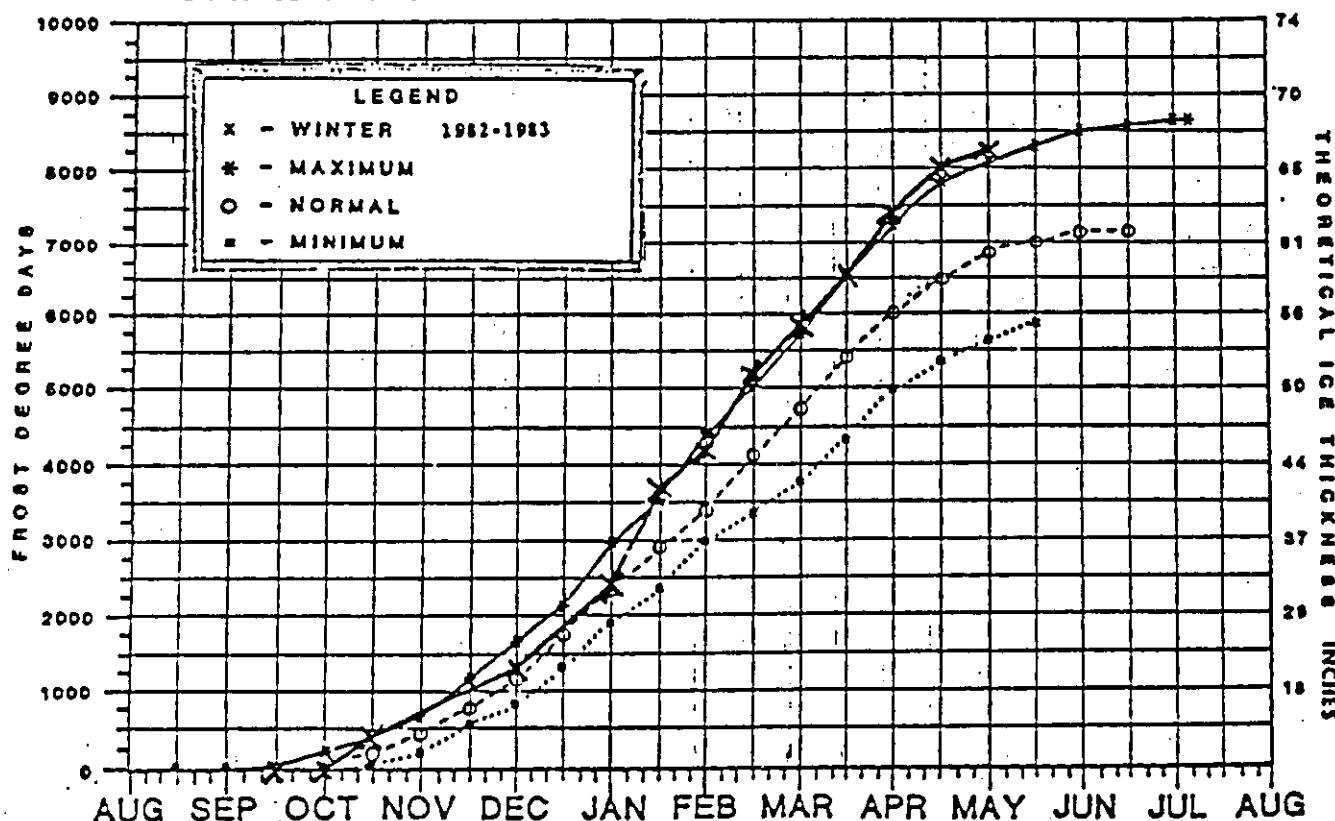


Figure 6. Frost degree day accumulation for Cape Dyer, Canada

FROBISHER BAY FROST-DEGREE-DAY CURVES

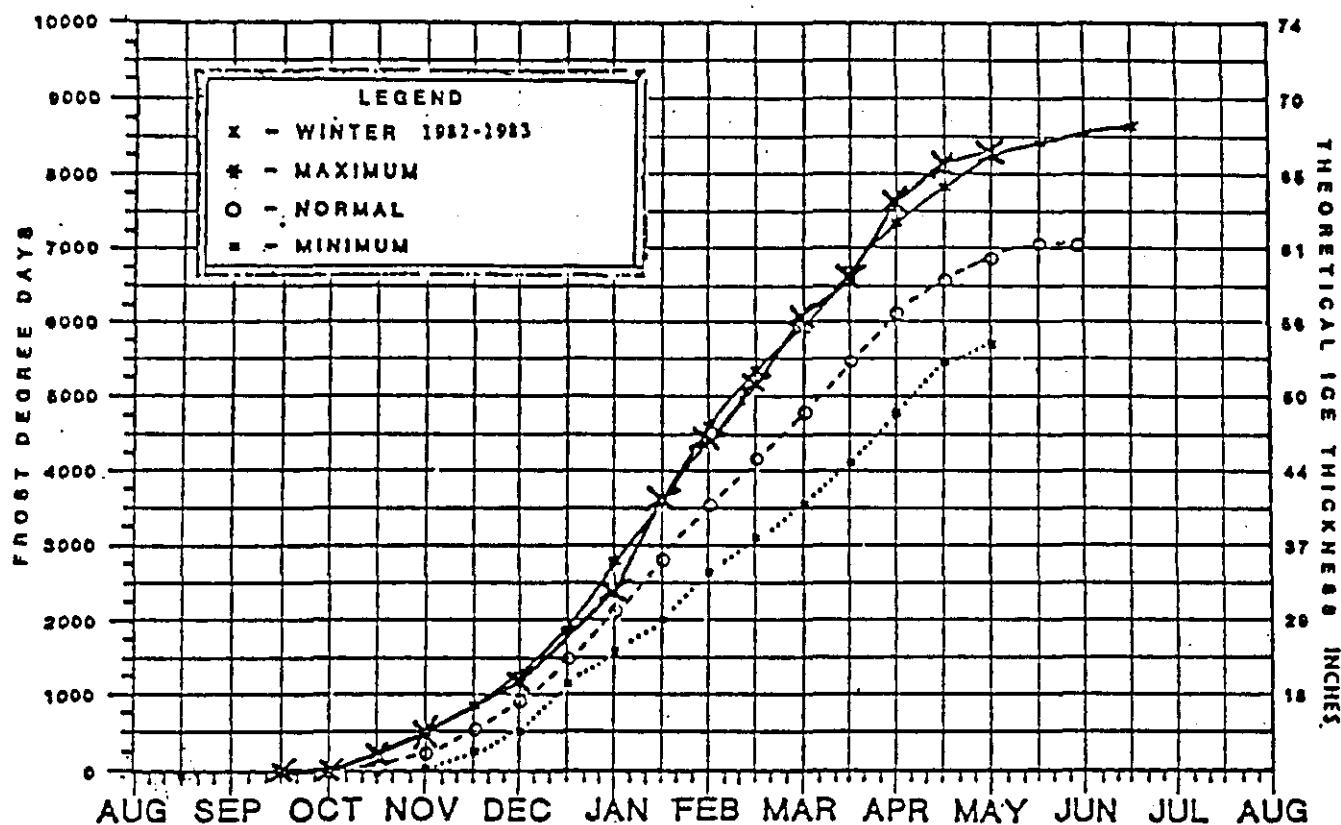


Figure 7. Frost degree day accumulation for Frobisher Bay, Canada

ANGMAGSSALIK FROST-DEGREE-DAY CURVES

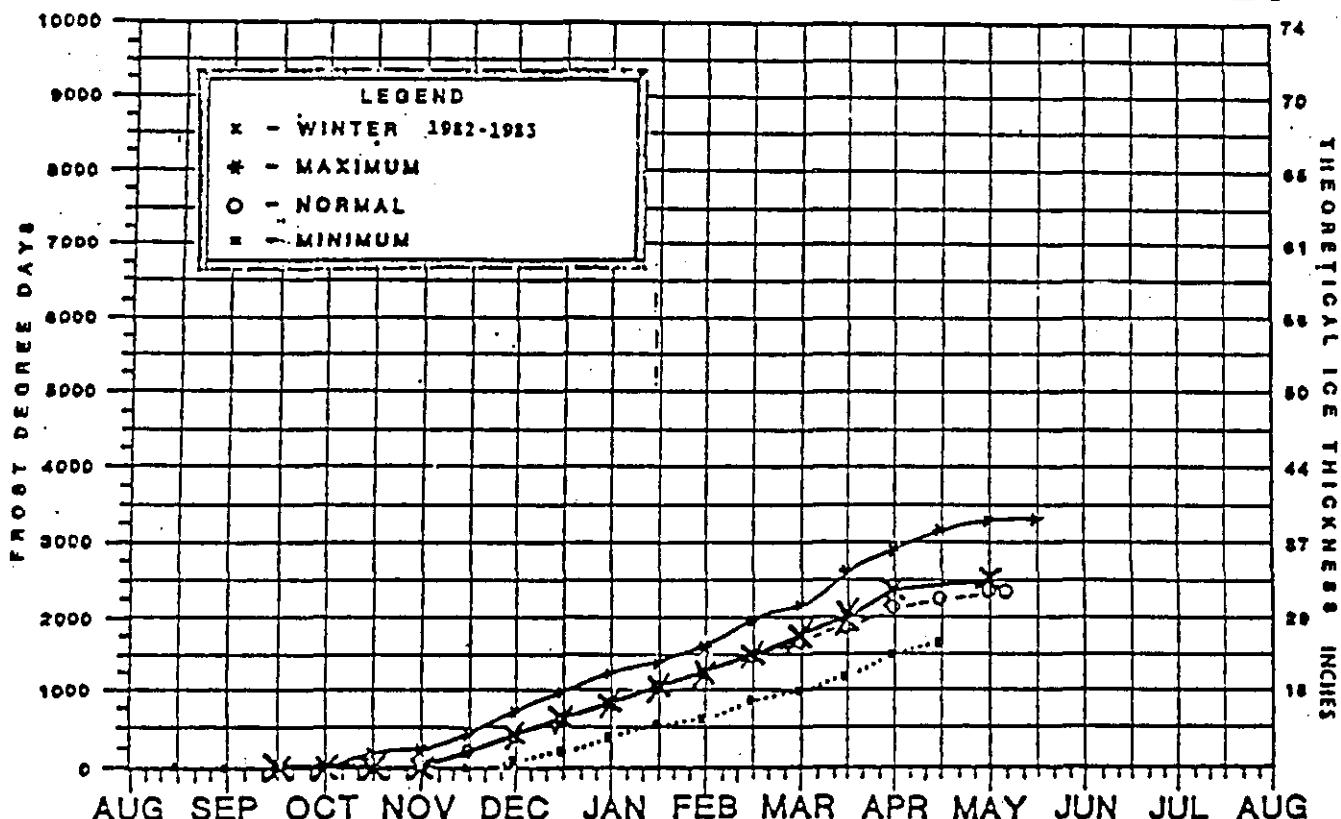


Figure 8. Frost degree day accumulation for Angmagssalik, Greenland

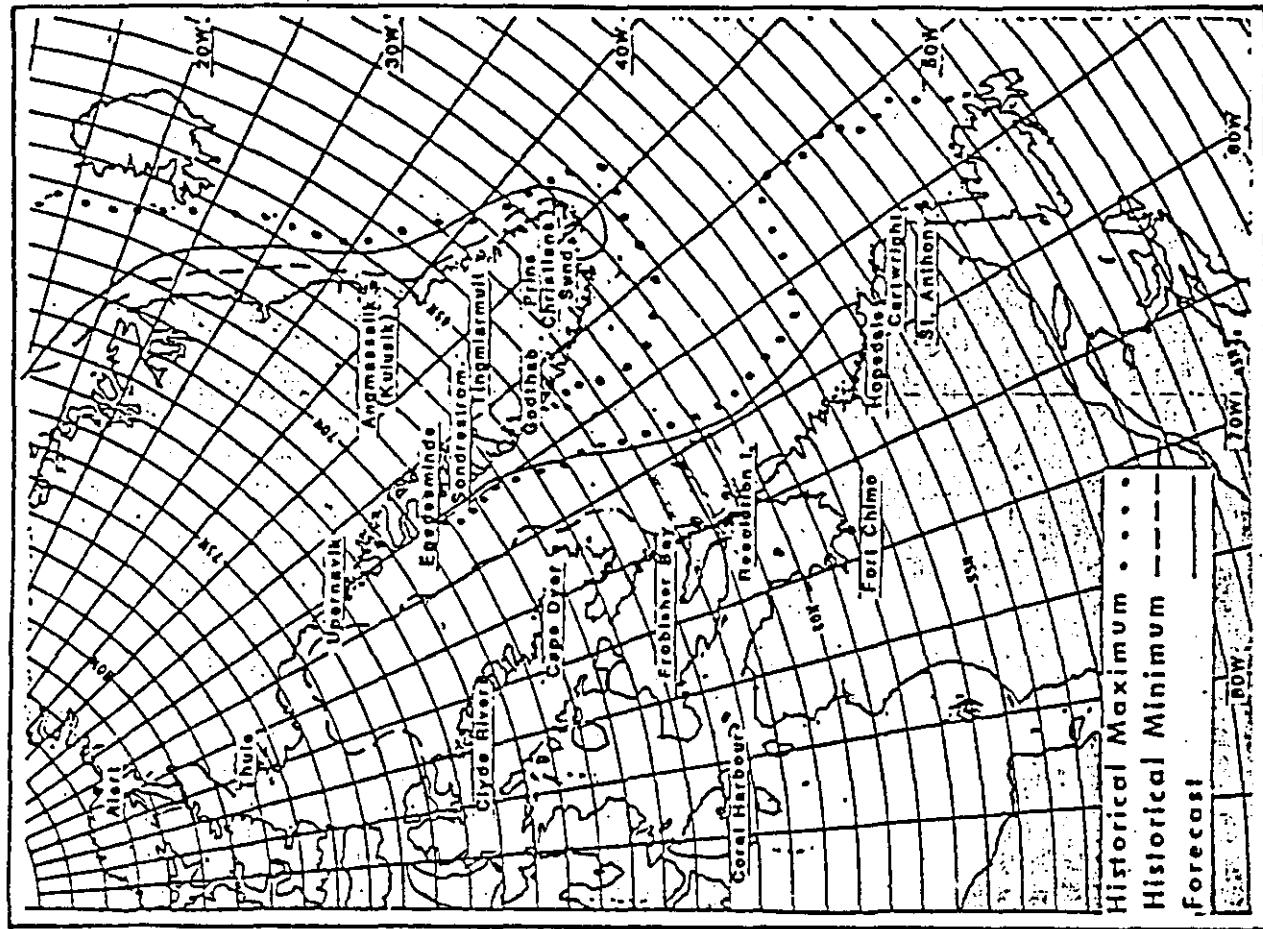


Figure 9. Historical end of May maximum, minimum and May 31, 1983 forecast ice edge position

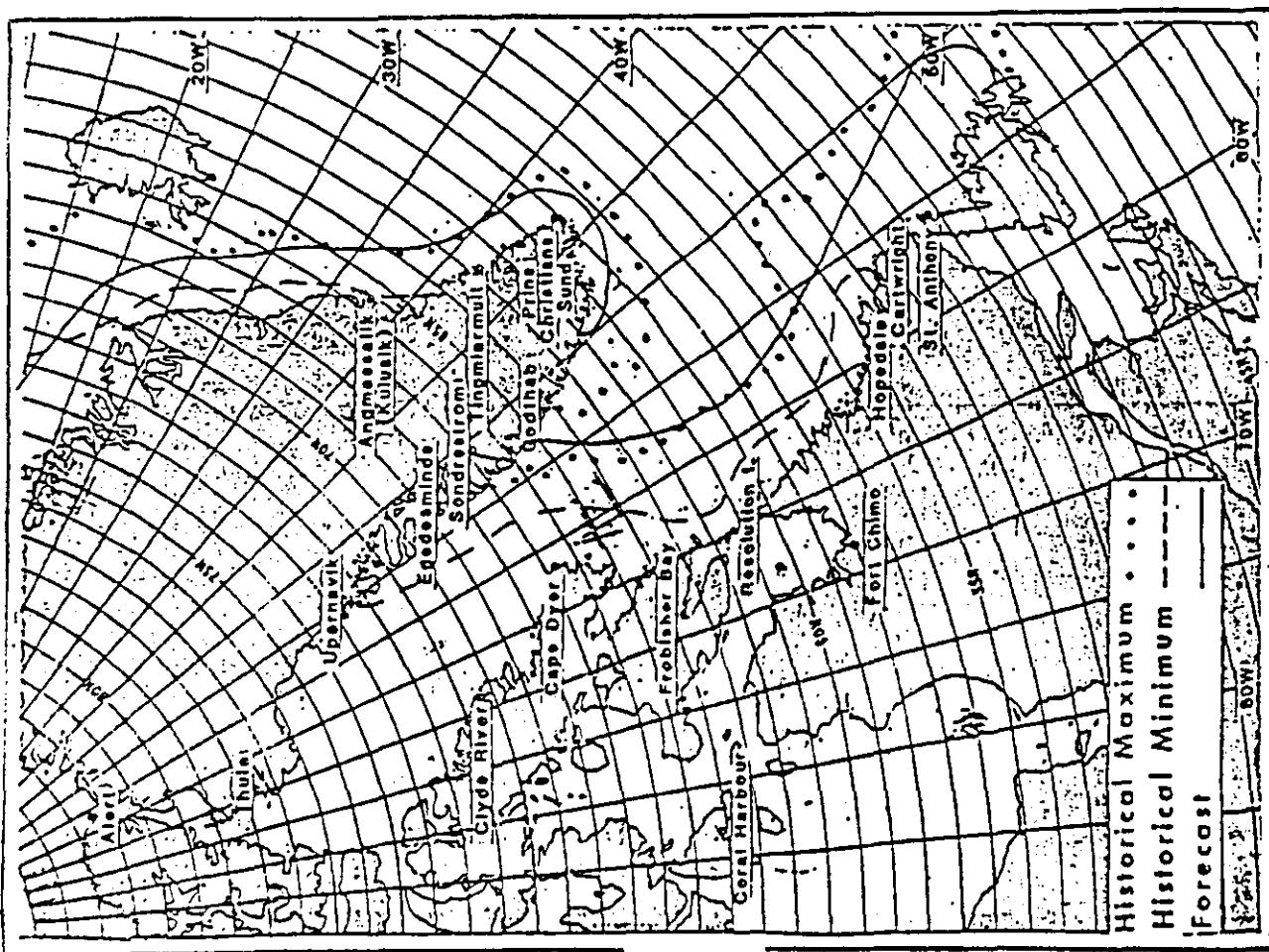


Figure 10. Historical end of June maximum minimum and June 30, 1983 forecast ice edge position

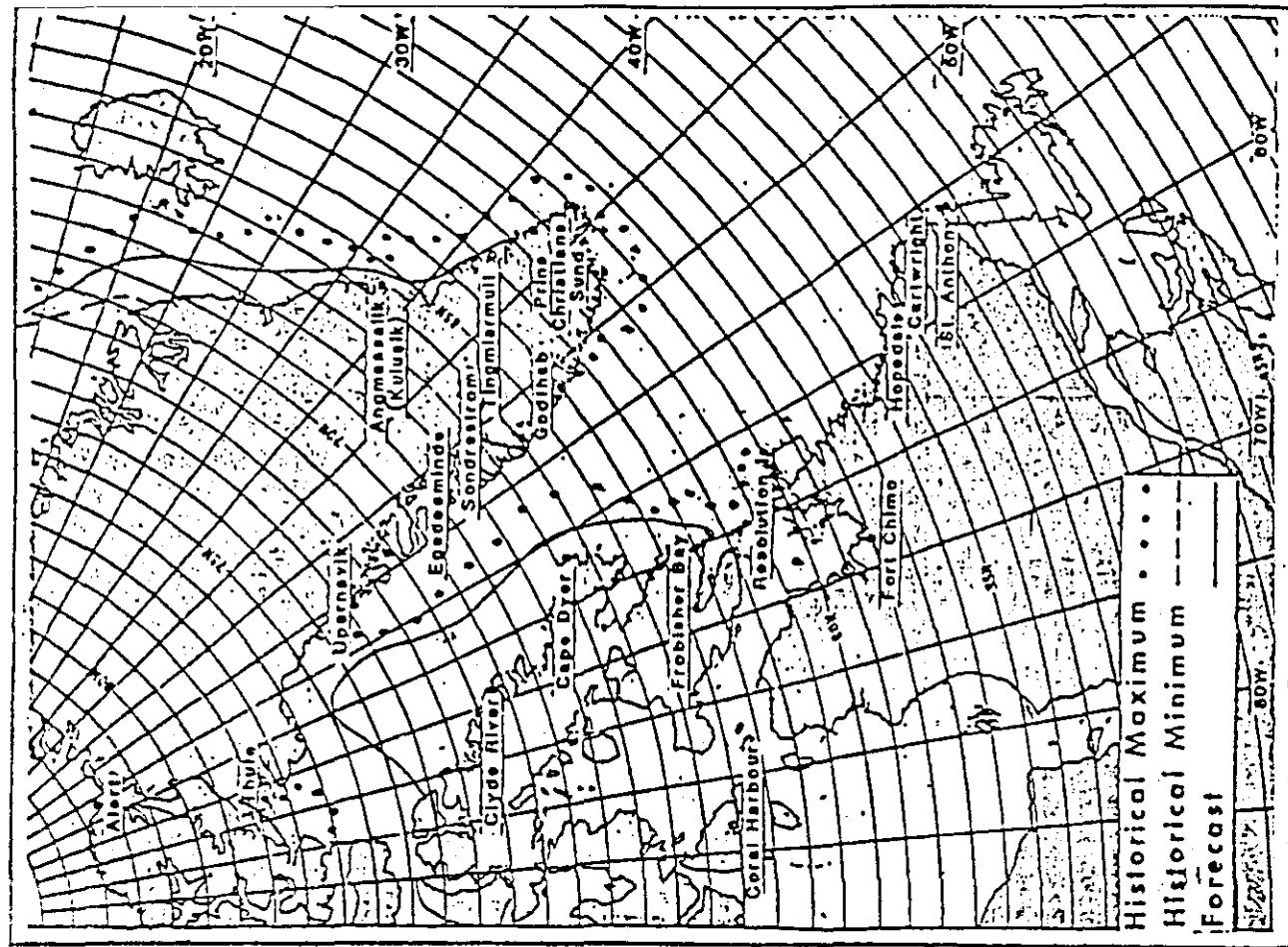
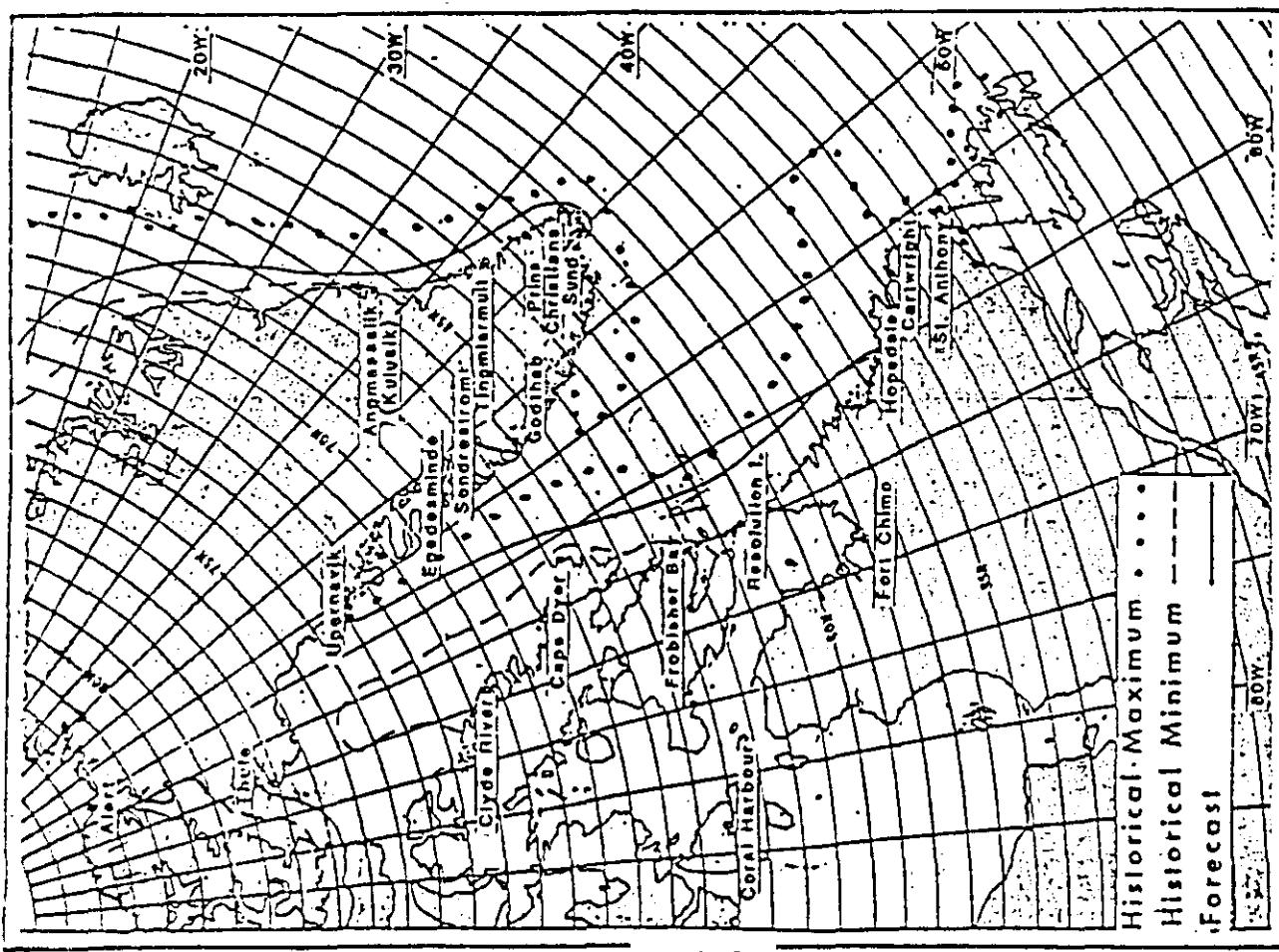


Figure 11. Historical end of July maximum, minimum and July 31, 1983 forecast ice edge position



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Figure 12. Historical end of August maximum, minimum and August 31, 1983 forecast ice edge position